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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/750,452	12/30/2003	Carlo Tomasi	A-70723-1/TAL/VEJ	4967

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EXAMINER
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SHAPIRO, LEONID

ART UNIT	PAPER NUMBER
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2629

DATE MAILED: 09/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/750,452	<b>Applicant(s)</b> TOMASI ET AL.	
	<b>Examiner</b> Leonid Shapiro	<b>Art Unit</b> 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 December 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 14-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 14-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 14,16-20,24-27 are rejected under 35 U.S.C. 102(e) as being anticipated by DuFaux (US Patent No. 6,611,252 B1).

As to claim 14, DeFaux teaches a system enabling a user-manipulated user-object used with a virtual transfer device to transfer information to a companion device (See from Col. 1, Line 66 to Col. 2, Line 54), the system comprising:

a central processor unit (microprocessor) including memory storing at least one software routine (See Fig. 1, item 60, from Col. 5, Line 64 to Col. 6, Line 15);

a first optical system defining a plane substantially parallel-to and spaced-above a presumed location of said virtual transfer device (See Fig. 2, items 20,32,80, from Col. 3, Line 66 to Col. 4, Line 42);

a second optical system having a relevant field of view encompassing at least portions of said plane and responsive to user-object penetration of said plane to interact with said virtual transfer device (See Fig. 5, items 50,58,80, Col. 5, Lines 17-40);

means for determining relative position of a portion of said user-object on said plane (See Fig. 5, items 50,58,80, Col. 5, Lines 29-40);

wherein said system transfers information to said companion device enabling user-object with said virtual transfer device to affect operation of said companion device (See Fig. 2, items 60,70, Col. 4, Lines 33-37 and Col. 6, Lines 50-52).

As to claim 16, DuFaux teaches processing unit executing routine to determine relative position (See Col. 6 Lines 11-15).

As to claim 17, DuFaux teaches first optical system includes means for generating a plane of optical energy (See Fig. 2, items 20,32,80, from Col. 3, Line 66 to Col. 4, Line 42) and said second optical system includes a camera sensor that detects a reflected portion of said optical energy when said user-object penetrates plane (See Fig. 5, items 50,58,80, Col. 5, Lines 17-40).

As to claim 18, DuFaux teaches a laser to generate said plane (See Fig. 2, items 20,32,80, from Col. 3, Line 66 to Col. 4, Line 42); and a camera sensor that detects a reflected portion of optical energy when said user-object penetrates said plane (See Fig. 5, items 50,58,80, Col. 5, Lines 17-40).

As to claims 19-20,27 DuFaux teaches means for enhancing responsiveness of said second optical system to said use-object penetration while decreasing responsiveness to ambient light by providing a signature associated with generation of plane (See Col.6, Lines 34-52).

As to claim 24, DuFaux teaches companion device includes a portable communication device (See Fig. 9, item 70, Col. 6, Lines 59-67) and virtual transfer device is a virtual keyboard (See Fig. 9, item 80, col. 6, Lines 59-67).

As to claim 25, DuFaux teaches virtual transfer device is mapped to a work surface as a table top (See Fig. 2, item 20, from Col. 3, Line 66 to Col. 4 Line 5).

As to claim 26, DuFaux teaches a camera sensor having a lens and an image plane; wherein at least one of lens and image plane is tilted to enhance at least one of resolution and depth of field (See Fig. 5, items 52,54, Col. 5 Lines 18-41).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 15,21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over DeFaux as applied to claim 14 above, and further in view of Montellese (US Patent No. 6,281,878 B1).

As to claim 15, Defaux does not disclose determine relative position using triangulation analysis.

Montellese teaches how to determine relative position using triangulation analysis (See Figs. 5-6, items 16,18, Col. 5, Lines 23-54).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate teaching of Montellese into DeFaux system in order to use remote sensing (See Col. 2, Lines 23-30).

As to claim 21, Montellese teaches first camera sensor that defines plane (See Fig. 1, item 16, Col. 4, Lines 18-35).

As to claim 22, Montellese teaches first camera sensor that defines plane (See Fig. 1, item 16, Col. 4, Lines 18-35) and DeFaux teaches said second optical system includes a second camera to sense said penetration (See Fig. 5, items 50,58,80, Col. 5, Lines 17-40);

and further including;

a source of optical energy directed generally toward said virtual transfer device (See Fig. 2, items 20,32,80, from Col. 3, Line 66 to Col. 4, Line 42); and

means for synchronizing operation of at least two of same first optical system, second optical system, and said source of optical energy (See Col.6, Lines 34-52);

wherein effects of ambient light upon accuracy of information obtained with said system are reduced (See Col.6, Lines 34-52).

3. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over DeFaux as applied to claim 14 above, and further in view of Hillman et al. (Pub. No.: US 2002/0061217 A1).

As to claim 15, Defaux does not disclose first optical system includes a generator of optical energy of a desired wavelength; and second optical system is sensitive substantially only to optical energy of desired wavelength.

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Hillman et al. teaches first optical system includes a generator of optical energy of a desired wavelength; and second optical system is sensitive substantially only to optical energy of desired wavelength (See Fig. 3, items 120,128,320, paragraph 0038).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate teaching of Hillman et al. into DeFaux system in order to use flexible reconfigurable keyboard (See paragraph 0002).

### ***Telephone Inquire***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonid Shapiro whose telephone number is 571-272-7683. The examiner can normally be reached on 8 a.m. to 5 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Hjerpe can be reached on 571-272-7691. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LS  
09.06.06



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